

SAMOYLENKO, G.I.; GOREV, K.M.

Using wood of deciduous trees. Biul.tekh.-ekon.inform, no.3:69-  
70 '61. (MIRA 14:3)

(Hardwoods)

SAMOYLENKO, G.I.; GOREV, K.M.

At the "Krasnyi Mai" Plant and the Leningrad Plant of Decorative  
Glass. Stek. i ker. 18 no.2:40-41 F '61. (MIRA 14:3)  
(Leningrad—Glass manufacture)

SAMOYLENKO, G.I.; GOREV, K.M.

In the State Scientific and Technical Committee of the Council  
of Ministers of the R.S.F.S.R. Tekst.prom. 21 no.3:89-90 Mr '61.  
(MIRA 14:3)

(Textile machinery--Research)

0

GOREV, K.N.

Session of the Scientific Council of the Central Research Institute.  
Biol.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekh.inform.  
no.5:77-80 '62. (MIRA 15:7)  
(Research, Industrial)

GOREV, K.M.

Session of the Kola Branch of the Academy of Sciences of the U.S.S.R.  
Bul. ~~tekhn.~~ ekon.inform.Gos.nauch.-issl.inst.nauch. i tekhn.inform. no.4:  
81-82 '62. (MIRA 15:7)

(Academy of Sciences of the U.S.S.R.)

GOREV, K.M.

Economic research institutions in large economic regions of the  
R.S.F.S.R. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. i tekhn.-  
inform. no.8:79-80 '62. (MIRA 15:7)  
(Economic research)

GOREV, K.M.

State of carrying out the research plan for 1962. Biul.tekh.-ekon.  
inform.Gos.nauch.-issl.inst.nauch.i tekh.inform. no.9:"8 '62.(MIRA 15:9)  
(Research, Industrial)

GOREV, K. M.

Present status and future development of economic research  
in the branches of the Academy of Sciences of the U.S.S.R.  
Biul. tekhn.-ekonom. inform. Gos. nauch.-issled. inst. nauch. i  
tekh. inform. no.12:64-67 '62. (MIRA 16:1)

(Economic research)



GOREV, K.M.

Improvement and reorganization of the work of scientific councils.  
Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekhn.inform.  
16 no.4:70-71 '63. (MIRA 16:8)

(Technical societies)

SOV/137-58-10-21654

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 172 (USSR)

AUTHORS: Gorev, K.N., Parkhutik, P.A.

TITLE: The Effect of the Structural Nature of Certain Aluminum Alloys on Their High-temperature Characteristics (Vliyaniye kharaktera struktury nekotorykh splavov alyuminiya na ikh svoystva pri vysokoy temperature)

PERIODICAL: V sb.: Legkiye splavy. Nr 1. Moscow, 1958, pp 172-185

ABSTRACT: A summary of results of studies dealing with hot hardness (HH) of Al alloys (A) (subjected to transient and prolonged loading) as a function of their chemical composition, the conditions of crystallization from the liquid state, and heat treatment. Binary Al A's with Fe, Si, Mn, Cu, and an addition of 0.5% Mg were investigated in their cast state after a stabilizing anneal at the temperature of the experiment and a homogenizing anneal at a higher temperature. Increasing the concentration of secondary components increases the heat-resistance (HR) of cast A's; the greatest increase in HR results from the addition of elements to the A prior to the formation of a continuous network of excess phases surrounding the primary crystals in a

Card 1/2

SOV/137-58-10-21654

The Effect of the Structural Nature of Certain Aluminum Alloys (cont.)

solid solution. Stabilization annealing for 100 hours at testing temperature (300°C) does not affect the HH of Al-Mn and lowers the HH of Al-Cu and Al-Si A's by an insignificant amount; the greatest reduction of HH is observed in the Al-Fe A. High-temperature anneal almost completely eliminates the hardening produced in Al-Fe and Al-Si A's by heterogenization of their structure. Owing to the weakening of the action of interdendritic layers of excess phases, homogenization anneal of Al-Mn and Al-Cu A's results in a considerable reduction of their HH, providing that Mn and Cu are present in amounts greater than 1.5 and 2%, respectively. At smaller concentrations of Mn and Cu, the HH value remains large owing to the formation of a sub-structure which appears in these A's as a result of decomposition of the super-saturated solid solution of Al. As the rate of crystallization is increased, the HR of cast A's which have been annealed at 300° becomes greater, while the HR of A's in homogenized state is reduced. The only exception is the Al-Cu system the HR of which is reduced in any stage as the cooling rate is increased during solidification. Variations in HH which depend on conditions of manufacture and subsequent heat treatment of the A's are compared with changes occurring in the structure of the A's as a result of the factors indicated. 1. Aluminum alloys---Mechanical properties 2. Hardness --Analysis 2. Aluminum alloys--Structural analysis 3. Aluminum alloys P.P. Card 2/2 --Thermodynamic properties

S/137/62/000/001/123/237  
A052/A101

AUTHORS: Gorev, K.V., Nesterovich, L.N.

TITLE: Distribution of phase fields of Al-angle of Al-Zn-Mg-Cu diagram on the section corresponding to 1.5% Cu at 450°C

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 1, 1962, 7, abstract 1146 (Dokl. AN BSSR, 5, no. 7, 1961, 302 - 303)

TEXT: By the methods of X-ray and metallographic analyses was investigated the distribution of phase fields of the Al-angle in the Al-Zn-Mg-Cu system in the plane corresponding to 1.5% Cu, at 450°C and Zn and Mg content of 10 and 8% respectively. An isothermic section is plotted. It is shown that the Al-angle corresponding to 1.5% Cu plane of the Al-Zn-Mg-Cu system contains the phase regions  $\alpha$ , ( $\alpha + S$ ), ( $\alpha + M$ ), ( $\alpha + S + T$ ), ( $\alpha + M + T$ ), and ( $\alpha + S + M + T$ ) in the least amounts. There are 8 references.

Z. Rogachevskaya

[Abstracter's note: Complete translation]

Card 1/1

GOREV, K.V. [Goran, K.V.]; PUKHOVSKIY, Ye.P. [Pukhoushi, I.A.P.]

Heat-resistant properties of some nickel alloys at corresponding  
temperatures. Vestsi AN BSSR. Ser. fiz.-tekhn. nav. no.4:111-114  
'62. (MIRA 18:4)

L 02394-67 EWT(m)/T/EWP(t)/ETI IJP(c) JD

ACC NR: AR6023327

SOURCE CODE: UR/0276/66/000/003/B022/B022

AUTHOR: Gorev, K. V.; Tofpenets, R. L.; Mendeleyev, L. T.; Malashenko, L. M. 37  
B

TITLE: On the problem of hardening precipitation aging alloys

SOURCE: Ref. zh. Tekhnologiya mashinostroyeniya, Abs. 3B158

REF SOURCE: Sb. Metallovedeniye i term. obrabotka met. Minsk, Nauka i tekhnika, 1965, 25-33

TOPIC TAGS: dispersion hardening, solid solution, aluminum alloy, copper alloy,  
~~Alloy heat treatment~~

ABSTRACT: The factors affecting the hardening of precipitation aging alloys were studied. The work was done on Al-Cu (4.5% Cu), D16 and El437 alloys. The conditions for heat treatment of the alloys are given. It is shown that the factors which affect the strength characteristics of precipitation aging alloys are the particle size in the hardening phase, distortions in the crystal lattice and the block structure of the matrix. The contribution of each of these factors is determined by the degree of decomposition of the solid solution. In the first stages of aging when the hardening phase is highly dispersed and coherently bound to the matrix, the decisive factor is the quantity and particle size in the hardening phase and distortions in the crystal lattice of the matrix due to decomposition of the solid solution. The contribution made by reduction in the size of mosaic blocks increases

UDC: 621.785.001.5 16

Card 1/2

L 02394-67

ACC NR: AR6023327

with aging time and depends on the distance ratio between the particles of the hardening phase and the dimensions of the mosaic blocks. 4 illustrations, 1 table, bibliography of 12 titles. [Translation of abstract]

SUB CODE: 11, 20

Card 2/2

02513-67 EWT(m)/EWP(w)/T/EWP(e)/ETI IJP(e) SD/VW/VW/EM

ACC NR:

AR6023329

SOURCE CODE: UR/0276/66/000/003/E028/E028

AUTHOR: Gorev, K. V.; Parkhutik, P. A.

TITLE: Effect of elastic vibrations on precipitation hardening of alloys with respect to nonuniformity in the distribution of stresses generated by ultrasonic waves

SOURCE: Ref. zh. Tekhnologiya mashinostroyeniya, Abs. 3B208

REF SOURCE: Sb. Metallovedeniye i term. obrabotka met. Minsk, Nauka i tekhnika, 1965, 64-76

TOPIC TAGS: high temperature alloy, ultrasonic vibration, vibration effect, dispersion hardening, iron base alloy, nickel base alloy, stress distribution

ABSTRACT: The authors studied the effect of ultrasonic vibrations on precipitation hardening of high-temperature alloys and also the effect which nonuniformity in elastic stresses in various cross sections of a specimen has on aging results. Aging at 700°C was studied in two groups of experimental specimens based on iron and one group based on nickel. It is shown that ultrasonic vibration at a frequency of 20 kc intensifies the process of precipitation hardening in high-temperature alloys in the first stages of aging (4-6 hours at 700°C) and accelerates hardening of iron-based alloys by a factor of 2-3 and hardening of nickel alloys of the Nimonic

Card 1/2

UDC: 621.789



02533-87

ACC NR: AR6023329

type by a factor of up to 4. Further aging is accompanied by coagulation of the finely dispersed hardening phases and ultrasonic vibrations have no significant effect on the aging process. There is no observable effect due to ultrasonic vibrations on increasing the hardness of alloys aged at high temperatures. Hardening of specimens subjected to the effect of ultrasonic vibrations is the same as that for specimens subjected to aging alone for a correspondingly longer duration. It is shown that the accelerating effect which ultrasonic vibrations have on precipitation hardening processes in the alloys is nonuniformly distributed throughout the specimens. The maximum effect is observed in node sections of the specimen where the highest mechanical stresses take place. These stresses are absent at points with maximum vibrational amplitude. 9 illustrations. [Translation of abstract]

SUB CODE: 11, 20

Card 2/2 *egh*

PROCESSES AND PROPERTIES INDEX																																																																													
1ST AND 2ND GROUPS													3RD AND 4TH GROUPS																																																																
<p>77/</p> <p><b>*Investigations of the Transformations in the Solid State in Magnesium Silicon Aluminium Alloys.</b> A. A. Botchyar, K. W. Goryun, and A. M. Korolkov (<i>Maklury (The Metallurgist)</i>, 1932, 8, (1), 7-20; <i>Chem. Zvest.</i>, 1934, 108, 1, 1931).-- [In Russian.] The equilibria in the ternary system up to 2% silicon and 3% magnesium have been determined. The solid solubility of silicon and Mg<sub>2</sub>Si in aluminium is decreased by excess of either constituent, contrary to the statement of Hanson and Gayler (<i>J. Inst. Metals</i>, 1921, 28, 321-339) that excess of silicon increases the solid solubility of Mg<sub>2</sub>Si. H., G., and K. also find that excess of magnesium has a greater depressing effect on the solid solubility of Mg<sub>2</sub>Si in aluminium than stated by H. and G. From the changes in hardness on heat-treatment of Alkrey with 0.2-0.4% iron it is shown that an excess of silicon increases the effect of heat treatment, but has no effect in iron free Alkrey, except to retard somewhat the ageing; this difference is attributed to the formation of FeSi, so that an excess of silicon is necessary to get the full effect due to Mg<sub>2</sub>Si. A. R. P.</p>																																																																													
<p>ASD-SLA METALLOGICAL LITERATURE CLASSIFICATION</p> <table border="1"> <thead> <tr> <th colspan="13">1ST AND 2ND GROUPS</th> <th colspan="13">3RD AND 4TH GROUPS</th> </tr> </thead> <tbody> <tr> <td colspan="13">[Classification details]</td> <td colspan="13">[Classification details]</td> </tr> </tbody> </table>																										1ST AND 2ND GROUPS													3RD AND 4TH GROUPS													[Classification details]													[Classification details]												
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GOREV, K.V.

Investigation of transformations in the solid state of aluminum-magnesium-silicon alloys. A. A. Bozhvur, K. V. Gorev and A. M. Korolov. *Metallurgist* (U. S. S. R.) 1933, No. 1, 7-20.—A new constitution diagram of the Al-Mg-Si system, based on the microstructures of 47 alloys contg. 0-3% Mg and 0-2.75% Si, is presented. Melts were prepd. under a NaCl-KCl-LiCl flux. The alloys were superheated 50-150° for 4-18 hrs., then held for 10 days at temps. of 200°, 300°, 400°, 500° and 550° and quenched in cold water. Brinell tests made immediately and after 4 days' aging at 150° showed max. aging in specimens with max. of Mg<sub>2</sub>Si. Excess Si increases the effect of heat treating if 0.2-0.4% Fe is present, but decreases it if Fe is almost absent. The diagram indicates a max. solv. of Mg<sub>2</sub>Si in Al of 1% at 500° and 0.45% at 400°. Solv. decreases if excess Si or Mg is added, in contradiction to the diagram of Hanson and Gaylor (C. A. 16, 231), which indicates an increase. The path of the solv. isotherms in the Al-Mg<sub>2</sub>Si-Mg field in general agrees with those of H. and G. The isotherms for the solv. of Si are newly constructed.

H. W. Rathmann

ASH 314 METALLURGICAL LITERATURE CLASSIFICATION

GOREV, K.V.  
777

\*On the Crystallization of Ternary Eutectics. A. A. Betchvar and K. V. Gorev (*Vestnik Metalloproizvodstva (Messenger of the Metal Industry)*, 1933, (2), 44-45).---[In Russian.] Cf. *J. Inst. Metals*, 1933, 23, 238. Experiments are described to ascertain the order in which the different phases crystallize in the ternary eutectic, lead tin-cadmium, bismuth-tin-cadmium, and bismuth-lead-cadmium. The order of crystallization irrespective of the presence of an excess of one component is cadmium, lead, tin, bismuth.  
D. N. R.

ASD-31A METALLURGICAL LITERATURE CLASSIFICATION

EDOM STINGLIV		EDOM HAY ONY GSE		COLLATION	
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1	2	3	4	5	6
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19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36
37	38	39	40	41	42
43	44	45	46	47	48
49	50	51	52	53	54
55	56	57	58	59	60
61	62	63	64	65	66
67	68	69	70	71	72
73	74	75	76	77	78
79	80	81	82	83	84
85	86	87	88	89	90
91	92	93	94	95	96
97	98	99	100		

GOREV, K. V.

9

Crystallization of ternary eutectics. A. A. Bocharov and K. V. Gorev, *Ann. sector anal. phys.-chim., Inst. chim. gen. (U. S. S. R.)* 8, 283 (1970); cf. G. Tammann and H. Ritschwar, *C. A.* 21, 355. -- Pb-Sn-Cd, Bi-Pb-Cd and Bi-Sn-Cd alloys were melted and then slowly cooled. Specimens were etched with 1% HNO<sub>3</sub> and the structure studied by photomicrographs. The incipient crystn. of all the 3 phases takes place not simultaneously but successively. The metals can be arranged in the following order of their sepn.: Cd, Pb, Sn, Bi. Chas. Blanc

ASM - S. A. METALLURGICAL LITERATURE CLASSIFICATION

GOREV, K.V.; NEPPA, A.A.; PARKHUTIK, P.A.

Surface hardening of metals by means of electric spark treatment.

Sbor.nauch.trud.Fiz.-tekh.inst.AN BSSR no.1:49-70 '54.

(Metal--Hardening) (Electric spark) (MIRA 10:1)

GOREV, K.V.; BEL'SKIY, Ye.I.; DANILENKO, T.P.; KHALFINA, B.Ya.

Effect of heat treatment on the mechanical properties of 35KhGSA  
and 45G2 steels. Sbor.nauch.trud.Fiz.-tekhn.inst.AN BSSR no.1:71-  
79 '54. (MIRA 10:1)

(Steel alloys--Heat treatment)

GOREV, K.V.; PARKHUTIK, P.A.

Effect of composition and temperature on the heat resistance of  
aluminum-copper and aluminum-zinc alloys. Sbor.nauch trud. Fiz.-  
tekh.inst. AN BSSR no.2:115-132 '55. (MIRA 10:1)  
(Aluminum-copper alloys--Testing) (Aluminum-zinc alloys--  
Testing)



G. P. K. V.

Effect of composition and temperature on hot strength of aluminum-copper and aluminum-zinc alloys. G. P. K. V. and P. A. Parkhnik. *Sbornik Nauch. Trudov* 1964, Inst. Akad. Nauk Beloruss. S.S.R. 1955, No. 1, 115-32; *Fizmat. Zhur., Mat.* 1956, No. 1735. The relative hot strengths of Al-Cu alloys, alloyed from 99.98% Al and containing 0.5, 1.0, 2.0, 3.0, and 6.0% Cu were studied by continuous hardness and centrifugal methods. Al-Zn alloys containing 5, 10, 20, 30, 45, 60, and 75% Zn were tested only by a centrifugal blending method. Results of tests after 150-hr stabilization of alloys at a test temp. of 300°C are presented. A high degree of weakening with increase in temp. was noted on more highly alloyed samples in spite of a rise in continuous hardness for all temps. with increase of Cu content. Al-Zn alloys were tested in as-cast condition and after 150-hr stabilization. The strongest alloy at 300°C was 6% Cu, Zn, the weakest, 75% Zn. The increased weakening of Al-Cu alloys is connected with processes of decomposition of supersaturated solid solution and coagulation of products of decomposition.

25  
WEBC  
X  
W

09

GOREV, K.V.; HSTERKINA, V.A.

Effect of heat treatment and composition on the hardness and red  
hardness of R-9 cast gugg-speed steel. Sbor.nauch.trud. Fiz.-tekh.  
inst. AN BSSR no.2:133-149 '55. (MIRA 10:1)  
(Tool steel--Testing)

USSR/Solid State Physics - Mechanical Properties of Crystals and Polycrystalline  
Compounds, E-9

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 34888

Author: Gorev, K. V., Mendeleyev, L. T.

Institution: None

Title: Effect of Chemical Composition and Heat Treatment on Hardness of Cast  
Al-Mg-Zn-Cu Alloys

Original

Periodical: Sb. nauch. tr. Fiz-tekhn. in-ta AN BSSR, <sup>1955</sup> 1955, No 2, 150-157

Abstract: None

Card 1/1

AKIMOVA, K.I.; BAZHENOV, M.F.; BAKHVALOV, G.T.; BEZKLIUBENKO, N.P.; BERMAN, S.I.;  
BOGDANOV, Ye.S.; BODYAKO, M.N.; BOYKO, B.B.; VINOGRADOV, S.V.;  
GAGEN-TORN, K.V.; GIEK, T.P.; GOREV, K.V.; GRADUSOV, P.I.; GUSHCHINA, T.N.;  
YEMEL'YANOV, A.K.; YESIKOV, M.P.; ZDZYARSKIY, A.V.; ZAKHAROV, M.V.;  
ZAKHAROVA, M.I.; KARCHEVSKIY, V.A.; KOMAROV, A.M.; KORZHENKO, O.T.;  
LAYNER, V.I.; MAL'TSEV, M.V.; MILLER, L.Ye.; MILOVANOV, A.I.;  
MIRONOV, S.S.; NIKONOROVA, N.A.; OL'KHOV, N.P.; OSIPOVA, T.V.;  
OSOKIN, N.Ye.; PERLIN, I.L.; PLAKSIN, I.N.; PROKOF'YEV, A.D.;  
RUMYANTSEV, M.V.; SEVERDENKO, V.P.; SEREDIN, P.I.; SMIRYAGIN, A.P.;  
SPASSKIY, A.G.; TITOV, P.S.; TURKOVSKAYA, A.V.; SHAKHNAZAROV, A.K.;  
SHPICHINETSKIY, Ye.S.; YURKSHTOVICH, N.A.; YUSHKOV, A.V.;  
YANUSHEVICH, L.V.

Sergei Ivanovich Gubkin. TSvet.met. 28 no.6:60-61 N-D '55. (MIRA 10:11)  
(Gubkin, Sergei Ivanovich, 1898-1955)

"APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R000616210009-6

GOREN, R. V.

APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R000616210009-6"

Gorev, K. V.

137-1957-12-24438

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 12, p 212 (USSR)

AUTHORS: Gorev, K. V., Pavelyeva, T. S., Mishin, P. A.

TITLE: The Effect of High-Temperature Gas Carburization on the Properties of the Steels of the 18 Kh GT, 12 Kh NZA, and 20 Kh Types  
(Vliyaniye vysokotemperaturnoy tsementatsii na svoystva stali marok 18 Kh GT, 12 Kh NZA i 20 Kh)

PERIODICAL: Sb. nauchn. tr. Fiz. tekhn. in-t AN BSSR, 1956, Nr 3, pp 178-191

ABSTRACT: An investigation of high-temperature gas-carburization (HTGC) of the steels 18 Kh GT, 12 Kh NZA, 20 Kh, and 20 was carried out with spindle oil and lamp kerosene which served as carburizers. The HTGC was conducted in the shaft furnaces Ts-60 and Ts-105 of the heat-treatment shop at the Minsk automobile plant. It was found that increasing the temperature from 920 to 1000° shortens the cycle by 1.5 to 2 times. The rough structure obtained from the HTGC is corrected by subsequent heat treatment, and the mechanical properties of the steel are not impaired, but, according to certain indicators ( $a_k$ , the strength and the deflection under

Card 1/2

137-1957-12-24438

The Effect of High-Temperature Gas Carburization (cont.)

static bending, and the  $R_c$  of the core) are even somewhat better than those obtained at 920°. The employment of HTGC is recommended for the above investigated grades of steel.

A. P.

1. Steel-Carburization-Equipment

Card 2/2

SOV/137-57-11-22460

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 11, p 263 (USSR)

AUTHORS: Gorev, K.V., Parkhutik, P.A.

TITLE: An Investigation of the Heat Resistance of Cast Aluminum Alloys in Accordance With Their Constitution and Structure (Issledovaniye zharoprochnykh svoystv litykh splavov alyuminiya v zavisimosti ot ikh sostava i struktury)

PERIODICAL: Sb. nauch. tr. Fiz.-tekhn. in-t AN BSSR, 1956, Nr 3, pp 192-214

ABSTRACT: An investigation is made into the hardness in the hot state of Al alloys containing up to 3% Fe, 11% Si, and 4% Mn or 10% Cu, with uniform addition of 0.5% Mg, on short (30-sec) and long (1-hour) loading, relative to its structural state, which is varied by changing the chemical composition and various modes of cooling the castings during crystallization. The alloys are investigated in the cast condition, after stabilization at the test temperature, and after homogenizing anneal. At 300°C, the hardness of the alloys increases in the cast condition and after stabilization, whereas it drops in the homogenized condition with an increase in the rate of crystallization, except for Al-Cu

Card 1/2



SOV/137-57-11-22460

An Investigation of the Heat Resistance of Cast Aluminum Alloys (cont.)

alloys, in which heat resistance diminishes in all samples with increase in rate of cooling. The rise in the concentration of secondary components leads to an increase in the heat resistance of the alloys in the cast state; the greatest increase in hardness is called forth by addition of components at the outset until the instant at which a continuous network of excess phases is set up in the structure around the initial crystals of solid Al solution. Stabilization at 300° (100 hours) does not change the hardness of Al-Mn alloys and causes an insignificant decrease in Al-Cu and Al-Si alloys and a somewhat more pronounced one in Al-Fe alloys. Homogenizing anneal removes almost completely the hardening due to heterogenization of structure in Al-Si and Al-Fe alloys. In alloys of Al with Mn and Cu, homogenization also induces a considerable drop in hardness, but only with a content of Mn > 1.5 and Cu > 2%. At lower concentrations a considerable decline in hardness is observed. At 1.5% Mn and 2% Cu, alloys in the homogenized state attain maximum heat resistance, whereas a further increase in additions does not result in any noticeable changes therein.

P.P.

Card 2/2

GOREV, K. V.

GUBKIN, S.I. [deceased]; DOBROVOL'SKIY, S.I.; BOYKO, B.B.; ~~GOREV, K.V.~~  
akademik, redaktor; KHOLYAVSKIY, S., redaktor izdatel'stva;  
ALEKSANDROVICH, Kh., tekhnicheskiy redaktor

[Photoplasticity] Fotoplastichnost'. Minsk, Izd-vo Akad.nauk  
Belorusskoi SSR, 1957. 165 p. (MLBA 10:9)

1. Akademiya nauk BSSR. (for Gorev). 2. Deystvitel'nyy chlen  
Akademii nauk BSSR (for Gubkin)  
(Photoelasticity)

GOREV K.V.

137-58-2-4201

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 276 (USSR)

AUTHORS: Gorev, K.V., Yanchenko, N.I., Parkhulik, P.A.,  
Mendeleyev, L.T.

TITLE: How Heat-treatment Parameters Affect the Properties of Pistons  
Made from Alloy AL-25 (Vliyaniye usloviy termooobrabotki na  
svoystva porshney iz splava AL-25)

PERIODICAL: Mashinostroitel' Belorussii, Nr 2 (3), 1957, pp 114-121

ABSTRACT: To learn if it would be feasible to eliminate the heating operation from the quenching process, comparative tests were made of the mechanical properties ( $\sigma_b$ ,  $H_B$ ) of sample pistons made from AL-25 alloys, wherein the pistons were cooled immediately after being chill-cast in air, in hot water, and in cold water. Suggested is a new procedure for heat-treating pistons which consists in quenching them in the water from the chill mold, then aging them 4 hours at  $210 \pm 10^\circ\text{C}$ .

P.P.

1. Steel alloys--Processes 2. Pistons--Properties 3. Pistons  
--Heat treatment

Card 1/1

*SEVERDZENKA*  
SEVERDZENKA, V.P.; GOREU, K.V.; BADZYAKA, M.N.; KANAVALAU, Ye.G.

Development of the metalworking industry in White Russia.  
Vestsi AN BSSR Ser. fiz.-tekh. nav. no.3:21-31 '57.

(MIRA 11:1)

(White Russia--Machinery industry)

GOREV, K. V.; and PARKHUTNIK, P. A.

"Effect of the Type of Structure of Certain Aluminum Alloys on Their Properties at High Temperatures"

Light Alloys. no. 1: Physical Metallurgy, Heat Treatment, Casting, and Forming; Principal Reports of the Conference, Moscow, Izd-vo AN SSSR, 1958. 497 P.

(1.0. A.D. Conf. on Light Alloys)

GORIV, K. V.

with Toipenets, R. L., "An Investigation of the Process of Recrystallization of Iron-containing Alloys of the EI-437 type." p. 133

with Nesterovich, L. N. "An Investigation of the Properties of Aluminum Alloys with Constant Amounts of Copper, Manganese, and Chromium and with Variable Amounts of Magnesium and Zinc." p. 141

with Shvedov, L. I., "Dispersion Hardening of Iron as Influenced by Certain Intermetallic Compounds." p. 162.

Sbornik nauchnykh trudov, vyp. IV, Minsk, Izd-vo-AN BSSR, 1958, 261p.

GOREV, K.V.; SHEVCHUK, L.A.

Features of carbon saturation of the gamma-phase in magnesium  
cast iron. Dokl. AN BSSR 2 no.11:450-452 '58. (MIRA 12:8)  
(Cast iron--Metallography)

GOMEV, K.V. [Horau, K.V.]; SHEVCHUK, L.A. [Shauchuk, L.A.]

Graphitization heating of magnesium-iron alloys. Vests1 AN BSSR.  
Ser.fiz.-tekhn. no.4:33-38 '58. (MIRA 12:4)  
(Iron alloys--Metallurgy)



SOV/137-59-3-6291

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 3, p 192 (USSR)

AUTHORS: Gorev, K. V., Tofpenets, R. L.

TITLE: A Study of the Recrystallization Process in Alloys of the EI437 Type Alloyed With Fe (Izucheniye protsessy rekristallizatsii splavov tipa EI437, legirovannykh zhelezom)

PERIODICAL: Sb. nauchn. tr. Fiz.-tekhn. in-t AN BSSR, 1958, Nr 4, pp 133-140

ABSTRACT: Metallographic and X-ray-diffraction methods were employed in studying the process of recrystallization (R) in alloys (A) of the EI437 type alloyed with 10 and 20% of Fe; the A's were subjected to various degrees of dynamic upsetting deformation (5-50%) at various strain rates in a drop hammer at temperatures ranging from 980 to 1200°C. It was established that the temperature of the beginning of R increases if the A contains up to 10% of Fe; however, if its concentration is increased to 20%, the Fe no longer affects the temperature of the beginning of the R. The R in A's investigated progresses at a relatively slow rate, the process being completed only at temperatures  $> 1050^{\circ}$  and at deformations

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SOV/137-59-3-6291

A Study of the Recrystallization Process in Alloys of the EI437 Type Alloy d(cont.)

> 28-35%. Regardless of temperature, the degree of deformation (28-48%) has little effect on the grain size in either A. Increasing the temperature of deformation produces a marked growth of recrystallized grains in A's containing 10% Fe; the grain size of A's containing 20% Fe, however, remains virtually unaffected. Diagrams of type-II R are given for both A's.

T. M.

Card 2/2

82656

S/123/59/000/09/04/036

A002/A001

18.1210

Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1959, No. 9, p. 18,  
# 32906

AUTHORS: Gorev, K. V., Nesterovich, L. N.

TITLE: Investigation of Properties of Aluminum Alloys With Constant<sup>1</sup>  
Content of Copper, Manganese and Chromium, and Variable Content  
of Magnesium and Zinc

PERIODICAL: Sb. nauchn. tr. Fiz.-tekhn. in-t AN BSSR, 1958, No. 4, pp. 141-151

TEXT: The author studied the mechanical properties ( $\sigma_b, \sigma_{0.2}, \delta$ ) of aluminum alloys in dependence on the Mg and Zn concentration and constant content of (in %) Cu 1.5, Cr 0.3, Mn 0.5. Tension tests of pressed rods were performed immediately after hardening, in hardened, aged and annealed state of the specimens. In one group of alloys, the effect of Zn concentrations on the alloy properties was investigated at a Mg content of 0.75 - 4%. In the second group the effect of Mg was studied at a Zn content of 4 - 10%. An addition of Mg has a greater effect than Zn on a strength increase of the alloys, but

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S/123/59/000/09/04/036  
A002/A001

Investigation of Properties of Aluminum Alloys With Constant Content of Copper, Manganese and Chromium, and Variable Content of Magnesium and Zinc

their ductility is reduced simultaneously. Alloys with 8-10% Zn and 2.2% Mg content showed the best properties; in this case  $\sigma_b = 72 - 73 \text{ kg/mm}^2$  and  $\delta = 10\%$ . In the authors' opinion, the main hardening agent of heat-treated alloys is the  $\text{MgZn}_2$  compound.

P. P. A.

Translator's note: This is the full translation of the original Russian abstract.

*X*

Card 2/2

SOV/137-58-12-25123

Translation from: Referativnyy zhurnal. Metallurgiya, 1958 Nr 12, p 154 (USSR)

AUTHORS: Gorev, K. V., Shvedov, L. I.

TITLE: Precipitation Hardening of Iron Under the Influence of Certain Inter-metallic Compounds (Dispersionnoye tverdeniye zheleza pod vliyaniyem nekotorykh intermetallicheskikh soedineniy)

PERIODICAL: Sb. nauchn. tr. Fiz.-tekhn. in-t AN BSSR, 1958, Nr 4, pp 162-169

ABSTRACT: The authors investigated the influence of Al, Ni, Ti, and other alloying elements forming intermetallic compounds with Fe or with each other on the precipitation hardening of Fe-base alloys. Specimens 25 mm in diam and 15-20 mm high were quenched in water or in oil from 1200°C and aged at 500 and 600°C up to 48 hours. H<sub>B</sub> hardness was measured. Curves of the changes of hardness in relation to the alloying-element content and the heat-treatment schedule (temperature and duration of aging period) were constructed. It is established that the groups of alloys of Fe with Al and Ni, Al and Ti, and Ni and Ti studied display an appreciable aging effect at a certain ratio of components and, therefore, can be used as a known base for the development of new high-temperature alloys.

Card 1/1

B. G.

GOREV, K.V.; SHVEDOV, L.I.

Effect of aluminum on properties of iron-chromium-nickel-manganese alloys. Inzh.-fiz. zhur. no. 6:45-49 Je '58. (MIRA 11:7)

1. Fiziko-tekhnicheskiy institut AN BSSR, Minsk.  
(Iron-aluminum alloys)

GOREV, K.V. [Gorau, K.V.]; SHEVCHUK, L.A.

Effect of silicon and the original structure of magnesium  
pig iron on the austenite process. Vestsi AN BSSR.Ser.fiz.-  
tekh.nav. no.2:44-48 '59. (MIRA 12:11)  
(Cast iron)

GOREV, K.V.; LIVSHITS, S.L.

Sulfidation in pyrite. Dokl.AN BSSR 3 no.12:496-499  
D '59. (MIRA 13:4)

(Pyrites)



PHASE I BOOK EXPLOITATION SOV/7018

Maednya nauk Belorusskoy SSR. Fiziko-tekhnicheskoy Institut  
Sovetskaya nauka, Minsk, 1959. 235 p. Extracts and  
summaries of Belorussian Physical Academy of Sciences  
Belorussian SSR, 1959. 235 p. Extracts and  
summaries. 1,100 copies printed.

Ma. of Publishing House: L. Kuznetsov, Tech. Ed.: I. Volokhovskiy;  
Editorial Board: V. P. Savchenko, Academician, Academy of Sciences  
USSR (Chief Ed.), V. V. Goryunov, Academician, Academy of Sciences  
USSR, M. N. Bolotko, Candidate of Technical Sciences, and  
P. A. Pavlovskiy, Candidate of Technical Sciences.

REMARKS: This book is intended for technical personnel and sci-  
entific workers.

COVER: This collection of 23 articles covers the following subjects: small draft rolling analysis of wire-drawing, design of rolling dies, impact upsetting, examination of the effect of temperature on plastic deformation, sublimation and carburizing processes, the phenomena of pulse-discharge, etc. Reproduction of the text of the book is intended for technical personnel and sci- entific workers.	66
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S/123/60/000/024/006/014  
A005/A001

Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1960, No. 24, p. 128,  
# 132945

AUTHORS: Gorev, K.V., Esterkina, V.A., Yanchenko, M.M., Pavel'yeva, T.S.

TITLE: The Cementation-Temperature Effect on the Mechanical Properties and  
Structure of Steels 18XГТ (18KhGT), 12XII3A (12KhNZA), and 20X (20Kh)

PERIODICAL: Sb. nauchn. tr. Fiz-tekhn. in-t AN BSSR, 1959, No. 5, pp. 133-146

TEXT: For determining the optimum conditions of high-temperature cementation, the temperature effect was studied (at 920, 960, 1,000°C) of gas cementation on the structure and the mechanical properties of steels 18KhGT, 12KhNZA, and 20Kh. Kerosene, synthol, and spindle oil were used as carbonizers. The cementation at temperatures of about 1,000°C does not deteriorate the mechanical steel properties. There are 7 figures and 3 references.

I.N.N.

Translator's note: This is the full translation of the original Russian abstract.

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S/137/60/000/012/033/041  
A006/A001

Translation from: Referativnyi zhurnal, Metallurgiya, 1960, No. 12, pp. 235-236,  
# 29981

AUTHORS: Gorev, K.V., Rapoport, L.A., Pavlenko, Z.L.

TITLE: Neutralization of Lead in Nimonic-95 Alloy

PERIODICAL: Sb. nauchn. tr. Fiz.-tekhn. in-t AN BSSR, 1959, No. 5, pp. 120-125

TEXT: The authors studied the effect of Zr, Ce, Ca, Ba and B on heat resistant properties of a nimonic-95 alloy containing (in %): Co 16, Cr 20, Al 1.75, Ti 3, the rest Ni, and Pb admixture in amounts of 0.002, 0.01, 0.05, and 0.1%. Prior to the tests the specimens were heat treated under the following conditions: heating for 8 hours at 1,150°C, air cooling with subsequent aging for 20 hours at 750°C; the methods employed were centrifugal bending and partially endurance tests. It was found that in alloys without Al or with its reduced content (0.8%) in the presence of 0.01 and 0.05% Pb, 0.05% Zr causes reduction and 0.5% Zr improves their properties. The effect of Cl is analogous. B has a positive effect

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Neutralization of Lead in Nimonic-95 Alloy

S/137/60/000/012/033/041  
A006/A001

on the heat-resistant properties when its content in relation to Pb is  $\leq 6.1$ , opposite to Ba and Ca which are completely unsuitable to be used as neutralizing admixtures. There are 5 references.

G. M.

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

88658

S/137/60/000/012/015/041  
A006/A001

187000

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 12, p. 126,  
# 29068

AUTHORS: Gorev, K.V., Livshits, K.V.

TITLE: Sulfitization in Liquid Bath

PERIODICAL: Sb. nauchn. tr. Fiz.-tekhn. in-t AN BSSR, No. 5, pp. 126 - 132, 1959

TEXT: The author studied the effect of hyposulfite and potassium ferro-  
cyanide admixture when sulfitizing  $\gamma$  10 (U10) steel and Armco-Fe, on their wear  
resistance. Sulfitizing was conducted in a liquid bath composed of 45%  $\text{CaCl}_2$ ,  
30%  $\text{BaCl}_2$  and 20%  $\text{NaCl}$  with addition of 6% hyposulfite and 4% potassium ferro-  
cyanide separately or jointly at  $550^\circ\text{C}$ . U10 steel specimens were subjected to  
quenching and tempering at  $560^\circ\text{C}$ . Their wear resistance was determined on a MM  
(MI) machine during friction without lubricant at a constant pressure as high as  
30 kg (specific pressure  $15 \text{ kg/cm}^2$ ). It was found that sulfitizing in a bath  
containing potassium ferrocyanide yields approximately the same results as sul-  
fitizing in a bath containing both potassium ferrocyanide and hyposulfite.

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Sulfitization in Liquid Bath

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A006/A001

Microinspection has shown that in the presence of potassium ferrocyanide in the bath, nitriding of the specimens takes place rather than sulfitizing, and that hyposulfite only speeds-up this process. The possibility is considered of speeding-up the cyaniding process with the aid of hyposulfite.

M. Sh.

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

S/137/60/000/011/038/043  
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No.11, p.258, # 27312

AUTHORS: Gorev, K.V., Esterkina, V.A., Yanchenko, M.M., Pavel'yeva, T.S.

TITLE: The Effect of Cementation Temperature on Mechanical Properties and Structure of 18ХГТ(18KhGT), 12ХНЗА(12KhNZA) and 20Х (20Kh) Steels

PERIODICAL: Sb. nauchn. tr. fiz. tekhn. in-t AN BSSR, 1959, No. 5, pp. 133-146

TEXT: The authors investigated the effect of gas cementation temperature (920 - 1,000°C) and the conditions of subsequent heat treatment on the mechanical properties ( $\sigma_b$ ,  $\sigma$ ,  $\psi$ ,  $a_k$ ,  $R_C$ ) and the rate of saturation with C of 18KhGT, 12KhNZA and 20Kh grade steels. It was established that cementation at temperatures of the order of 1,000°C did not impair the mechanical properties of the steel. It is shown that extended annealing at 920 - 1,000°C does not impair the mechanical properties of the steel in spite of the resulting considerable grain growth. ✓

T.F.

Translator's note: This is the full translation of the original Russian abstract.

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S/571/60/000/006/006/011  
E111/E135

AUTHORS: Gorev, K.V., Proskurina, Z.N., and Shevchuk, L.A.

TITLE: Investigation of the effect of ultrasonics on the structure of magnesium cast iron

SOURCE: Akademiya navuk Belaruskay SSR. Fiziko-tekhnicheskii institut. Sbornik nauchnykh trudov. no.6, Minsk, 1960. 82-93

TEXT: Experiments have previously shown that when crystallization of magnesium inoculated cast-iron takes place under the action of ultrasonic vibrations the size of graphite precipitating is greatly reduced. In earlier work the authors have shown that the ultrasonic vibrations facilitate formation of crystallization centres and thus reduce the supercooling of the iron, giving a stable structure. The object of the present work was to study the effects on the structure of magnesium cast iron of ultrasonic vibrations of various intensities introduced into the alloy at various stages of the crystallization process, and to determine the influence of the cooling rate of the castings on the effects of the ultrasonics. Microscopic investigations were made

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of the structure of ultrasonically treated and of untreated specimens. 5-kg heats were induction melted in a quartz crucible. Inoculation was carried out in the ladle at an iron temperature of 2450 °C with an alloy containing 15% magnesium, the remainder being 75% ferrosilicon, the quantity added being calculated to give 0.5% magnesium relative to heat weight. An 18-22 kc/sec oscillator was used and with a single magnetostriction element an output of 2 kW was obtained. The oscillations were introduced into the metal with the aid of a half-wave concentrator; the apparatus is shown in Fig.1 (1 - ingot mould, 2 - thermocouple connected to temperature controller, 3 - concentrator, 4 - magnetostrictor, 5 - tube furnace, 6 - thermocouple connected to a temperature recorder, 7 - quartz sheath). The pouring temperature was 1300 °C. In the experiments in which the oscillations were applied at various stages of crystallization three irons were used, their compositions being shown in Table 1. Weights of 240 g were taken; the oscillations were applied using the maximum output (2 kW), the cooling to 300 °C being in the furnace, giving a rate of about 100 °C/min near the eutectic-arrest temperature. Vibrations during

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cooling from the pouring temperature to the end of the eutectic-arrest led to complete elimination of chilled and graphite size was greatly reduced, especially near the concentrator, but not for iron "C". This iron is somewhat hypo-eutectic and therefore primary crystals of austenite appeared before the graphite, weakening the effect of the ultrasonics. Many of the graphite inclusions were not strictly spheroidal, especially in the region adjacent to the concentrator. Similar effects were obtained when ultrasonics was applied during cooling from the pouring temperature to the start of the eutectic-arrest. When vibration was restricted to the eutectic-transformation process three zones were observed in all specimens. Near the concentrator is a zone with the structure of mottled iron and comparatively coarse globular graphite. Here the cooling rate was so rapid that crystallization occurred before vibration started; however, the vibrations had produced partial graphitization in the solid state. Above this is a zone with very small inclusions of globular graphite and a ferrite-pearlite structure. Ascending this zone, the effect of the vibration weakens rapidly and it merges into the third largest zone having the structure of mottled iron with

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comparatively large graphite inclusions (there were also small inclusions in some regions). Among possible causes of the much smaller effect of vibration when restricted to the eutectic is the poorer contact between the concentrator and casting. In the solid state, at 720 °C, vibration for about 2 minutes produced fairly considerable graphitization. The authors conclude from their results that ultrasonic vibration promotes crystallization of cast iron in the stable system and accelerates graphitization. The acceleration is due both to increase in the number of graphitization centres (due to cavitation-grinding of non-metallic inclusions) and quicker movement of carbon atoms to them because of fluid agitation; in the solid state it is due to production of internal stresses, which lower the stability of cementite and thereby facilitate graphite-nuclei formation at the cementite/austenite boundary, accelerating carbon diffusion in austenite and ferrite crystals. To study the effect of intensity of vibration on structure, cast iron "C" was used in weights of about 2.4 kg. Intensity was regulated through power output at about 1, 1.5 and 2 kW. With 1 kW a grey-iron structure was obtained over the whole vertical section. A fine globular-graphite and a pearlite-ferrite

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E111/E135

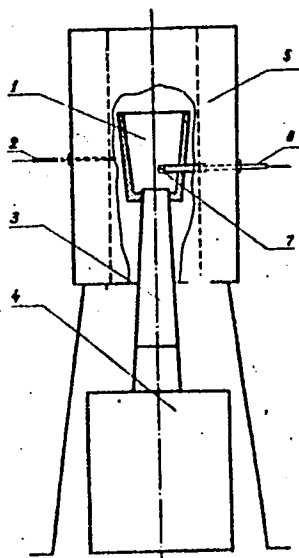
structure were obtained only near the concentrator. Above this graphite coarsens rapidly and, near the top, free cementite appears with ledeburite in increasing quantities. With 1.5 kW the pearlite-ferrite structure extends over the whole casting section with fine graphite extending over 1/3 of the height; graphite coarsens up the casting. With 2 kW the fine-graphite zone extends to half the height. For studying the effect of the cooling rate "C" iron was again used, power input being 2 kW and cooling rates near the eutectic arrest being about 20, 100 or 200 °C/min. When the first two cooling rates were applied, the structures were approximately similar; in the case of cooling at 200 °C/min a small quantity of ledeburite remained. Thus, an increased cooling rate weakens the effect of the ultrasonics; this is due firstly to the shorter action time and secondly to higher degrees of supercooling. There are 9 figures, 1 table and 9 references: 6 Soviet-bloc and 3 non-Soviet-bloc. The English language reference reads as follows:  
Ref.4: A.E. Crowford, Metallurgia, 47, p.109, 113, 1953.

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Fig.1



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Table 1

Designation of iron	Chemical composition, %					
	C	Si	P	S	Mn	Residual Mg
A	3.9	2.6	0.040	0.028	0.5	0.05-0.06
B	3.7	2.5	0.034	0.031	0.42	0.05-0.06
C	3.4	2.3	0.035	0.026	0.36	0.05-0.06

Card 7/7

GOREV, K.V.; PROSKURINA, Z.N.

Effect of carbon and silicon on the curves of cooling of cast iron  
modified and unmodified by magnesium. Sbor.nauch.trud.Fiz.-tekh.inst.  
AN BSSR no.6:94-105 '60. (MIRA 14:6)  
(Cast iron—Metallography)

GOREV, K.V.; KRAYEVOY, V.I.

Effect of alloying elements on the structure and properties of  
magnesium cast iron. Sbor.nauch.trud.Fiz.-tekh.inst.AN BSSR no.6:  
114-129 '60. (MIRA 14:6)

(Cast iron—Metallography)



KONONVALOV, Yevmeniy Grigor'yevich; SEVERDENKO, V.P., akademik, re-  
tsenzent; GOREV, K.V., akademik, red.; KHOLYAVSKIY, S., red.  
izd-va; VOLOKHANOVICH, I., tekhn. red.

[Fundamentals of new methods for machining metals] Osnovy no-  
vykh sposobov metalloobrabotki. Minsk, Izd-vo Akad. nauk  
BSSR, 1961. 296 p. (MIRA 15:3)

1. Akademiya nauk Belorusskoy SSR (for Gorev, Severdenko).  
(Metalwork)

23865  
S/128/61/000/004/002/003  
A054/A133

18 7500

AUTHORS: Gorev, K. V.; Proskurina, Z. N., and Shevchuk, L. A.

TITLE: Crystallization of magnesium cast iron under the effect of ultrasonics

PERIODICAL: Liteynoye proizvodstvo, no. 4, 1961, 35 - 36

TEXT: It was found that ultrasonic effects contribute to the disintegration of spheroidal graphite and to the evolution of a stable structure in magnesium cast iron. Tests were carried out to establish the effect of ultrasonics on the various phases of crystallization. The metal tested consisted of 5-1 (3-1) converter iron, "10" type steel and 75-% ferrosilicium. Magnesium was added to the ladle at 1,450°C as a magnesium master alloy with a 15-% magnesium content. (The metal compositions are given in the table). The ultrasonic vibrations (18 - 22 kc) produced by an УЗГ-10 (UZG-10) generator were transmitted to the metal by means of a semi-wave concentrator connected with a magnetostriction transformer (Fig. 1). The concentrator was inserted through an aperture in the ТГ-0,3 (TG-0.3) type graphite crucible, the ingot weighing about 240 g. The cooling of the castings was de-

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Crystallization of magnesium cast iron under...

laid by placing them in a tubular resistance furnace (with a temperature of 300°C). The ultrasonic treatment took place in three phases: 1) when the iron specimens cooled down from the pouring temperature till the beginning of the eutectic arrestation; 2) until the end of the eutectic arrestation; 3) during the eutectic crystallization. The ultrasonic treatment in the 2nd phase radically changes the metal structure. No blanching can be observed and the graphite globules are disintegrated very intensively, especially near the concentrator. Away from the concentrator, in the upper part of the casting, the size of graphite globules increases. Ultrasonic treatment in the 1st phase also eliminated blanching and resulted in the disintegration of graphite globules in the lower part of the ingot, in the proximity of the concentrator. In the 3rd phase (eutectic transformation) three zones were observed in all specimens: near the concentrator, a zone of mottled iron structure with fairly large-sized graphite inclusions; next a zone with very small graphite globules and a ferrite-pearlitic structure, with an insignificant pearlite content. In this zone the liquid metal crystallized under ultrasonic effect. Moving upwards, the ultrasonic effect becomes weaker, while in the third zone a mottled pig iron structure is

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Crystallization of magnesium cast iron under...

<sup>23865</sup>  
S/128/61/000/004/002/003  
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found with large graphite inclusions. When ultrasonic treatment was only applied during the eutectic crystallization period, its effect was much weaker than in the two other periods. This may partly have been caused by the less intensive contact between concentrator and casting, (a layer of metal crystallized, before the ultrasonic vibration started). The ultrasonic effect in this period was also limited by the irregularity of crystallization over the entire volume of the casting. The effect of ultrasonics was also investigated on solidified metal. The tests were only carried out in the third period (eutectic transformation) at 720°C, for 2 minutes and the microscopic findings revealed a considerable graphitization for this period. The accelerating effect of ultrasonic treatment on graphitization was explained by the increase of graphitization centers. On account of this, the path the carbon atoms have to cover to reach the graphite centers from the surrounding metal becomes shorter, both in liquid and in solid metal. Besides, the ultrasonic vibrations have also an effect on the degasification of the metal. Based on tests with other metals and alloys it can be assumed that supersonic vibrations accelerate the spontaneous evolution of graphite crystallization centers and also increase their number by the gravitational crushing of non-metallic inclusions around which the

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Crystallization of magnesium cast iron under...

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graphite particles crystallize. In solid metal graphitization is accelerated by internal stresses arising from the ultrasonic effect. These stresses weaken the stability of cementite, promote the formation of crystal grains on the boundary between cementite and austenite and accelerate diffusion of carbon atoms in austenite and ferrite crystals. There are 4 figures, 1 table and 9 references: 6 Soviet-bloc and 3 non-Soviet-bloc.

Table. Composition of the iron grades tested

Cast iron grade	Content of elements, %					
	C	Si	P	S	Mn	Residual magnesium
A	3.9	2.6	0.040	0.028	0.5	0.05 - 0.06
B	3.7	2.5	0.034	0.031	0.42	0.05 - 0.06
C	3.4	2.3	0.035	0.026	0.36	0.05 - 0.06

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S/137/62/000/005/079/150  
A006/A101

AUTHORS: Gorev, K. V., Nesterovich, L. N.

TITLE: Distribution of phase fields of the Al-vertex in the Al-Zn-Mg-Cu diagram on a section corresponding to 1.5% Cu at 200°C

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 19-20, abstract 51114 ("Izv. AN BSSR, Ser. fiz.-tekhn. n.", 1961, no. 4, 131-136)

TEXT: Methods of X-ray and metallographic analyses were used to study the Al-vertex of the Al-Zn-Mg-Cu system at a content of 1.5% Cu, 0 - 10% Zn and 0 - 8% Mg. An isothermic section was plotted at 200°C which is characterized by phase ranges ( $\alpha + v$ ), ( $\alpha + S$ ), ( $\alpha + T$ ), ( $\alpha + v + S$ ), ( $\alpha + S + T$ ), ( $\alpha + M + T$ ), ( $\alpha + M + S$ ), ( $\alpha + v + M$ ), ( $\alpha + v + M + S$ ), and ( $\alpha + M + S + T$ ), where  $\alpha$  is the Al-base solid solution. There are 6 references. See also RZhMet, 1962, 1146.

Z. Rogachevskaya

[Abstracter's note: Complete translation]

Card 1/1

GOREV, K.V.; PROSKURINA, Z.N.; SHEVCHUK, L.A.

Effect of the amount of inoculator and the rate of cooling on the  
crystallization of magnesium cast iron. Lit. proizv. no. 5:22-25  
My '61. (MIRA 14:5)

(Iron founding) (Crystallization)

S/571/61/000/007/007/010  
I048/I248

AUTHORS: Gorev, K.V., and Shevchuk, L.A.

TITLE: The effect of ultrasonic vibrations on the structure of  
silumin

SOURCE: Akademiya nauk Belaruskay SSR. Fiziko-tekhnicheskii  
institut. Sbornik nauchnykh trudov. no.7. 1961. 120-124

TEXT: Aluminum-silicon alloys containing 12 or 16% Si were prepared in a high-frequency furnace, modified (at 750°C) by the addition of a mixture containing 62.5% NaCl, 25% NaF, and 12.5% KCl, and then cast in graphite moulds. Ultrasonic vibrations with a frequency of 20 kilohertz were applied during the crystallization of some of the specimens, and their effect on the structure was examined under the microscope (magnification x 100). Supercooled structures were found in the specimens crystallized without vibration but not in those subjected to vibration. The vibrated specimens had a coarse structure resembling that of eutectic Si precipitates, and by the precipitation of Si crystals both along

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S/571/61/000/007/007/010  
I048/I248

The effect of ultrasonic vibrations...

the grain boundaries and inside the Al crystals. Thus, the vibration neutralizes the effect of the Na-K modifier and promotes the separation of the alloy constituents. The vibration during crystallization of non-modified alloy specimens changed the shape of the Si precipitate from whisker-like to equiaxial polyhedral crystals. There are 6 figures.

Card 2/2

GOREV, K.V.; PROSKURINA, Z.N.; SHEVCHUK, L.A.

Cast iron inoculation by cerium. Sbor. nauch. trud. Fiz.-tekh.-  
inst. AN BSSR no.7:125-134 '61. (MIRA 15:7)  
(Cast iron--Metallurgy) (Cerium)

GOREV, K.V.; KRAYEVOY, V.I.

Investigating the effect of vibrations on the structure of magnesium cast iron. Sbor. nauch. trud. Fiz.-tekh.inst. AN BSSR  
no.7:135-140 '61. (MIRA 15:7)  
(Cast iron--Metallography) (Vibrators)

S/571/61/000/007/008/010  
I048/I248

AUTHORS: Gorev, K.V., and Tofpenets, R.L.

TITLE: Effect of manganese on the recrystallization temperature

SOURCE: Akademiya nauk Belaruskay SSR. Fiziko-tekhnicheskiy  
institut. Sbornik nauchnykh trudov. no.7. 1961. 141-144

TEXT: The effect of Mn on the recrystallization temperature of Fe-based refractory alloys was studied by X-ray structure analysis, using the Debye method. Alloys containing 11.8-12.0% Ni, 11.0% Cr, 0.39-0.50% C, 1.8-2.4% V, 0-4.0% Al, 0.08-27.0% Mn, and the balance Fe, were examined. The cast specimens were homogenized by heating for 8 hours at 1200°C, drawn to 50% deformation, and annealed for 1.5 hours at 600-900°C. The recrystallization temperature of the alloys containing 5-25% Mn was 635-640°C, and was practically independent of the Mn content; the effect of Mn content was much greater in the alloys containing <5% Mn, and the recrystallization temperature increased from 675°C to 775°C with decreasing Mn content

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S/571/61/000/007/008/010  
I048/I248

Effect of manganese on...

from 0.5 to 0.08%. The recrystallization temperature of the Al-containing alloys exceeded that of the Al-free alloys to within the range 780-785°C, for alloys containing 4% Al and 15-20% Mn. There are 1 figure and 2 tables. ✓

Card 2/2

GOREV, K.V.; GALKOVSKAYA, M.M.

Effect of boron, vanadium, and carbon on the amount of residual  
austenite in cast, P-9 rapid cutting steel. Sbor. nauch. trud.  
Fiz.-tekh.inst. AN BSSR no.7:145-149 '61. (MIRA 15:7)  
(Tool steel—Metallography)

S/123/62/000/009/003/017  
A052/A101

AUTHORS: Gorev, K. V., Shvedov, L. I.

TITLE: The effect of C and V on the properties of austenitic Fe base alloys

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 9, 1962, 20, abstract 9A121 ("Dokl. AN BSSR", 5, no. 10, 1961, 455-457)

TEXT: The influence of C and V (0.05 - 0.5% and 0.5 - 1.5%) at a separate and joint alloying on the age hardening effect and long-time hardness of an alloy containing 0.05% C, 10% Cr, 12% Ni, 10% Mo, 4% Al and the balance Fe was studied. The highest age hardening effect is achieved at a joint alloying with C and V which is due to the precipitation of V carbides besides the  $\text{Ni}_3\text{Al}$  compound. Maximum longtime hardness has the alloy containing 1.5% V and 0.35% C. Its long-time hardness is twice as high as the hardness of the initial alloy.

[Abstracter's note: Complete translation]

Card 1/1

GOREV, K.V.; SHVEDOV, L.I.

Effect of carbon and vanadium on the properties of iron-base austenite alloys. Dokl. AN BSSR 5 no.10:455-457 0 '61. (MIRA 15:3)

1. Fiziko-tekhnicheskiy institut AN BSSR.  
(Iron alloys) (Carbon) (Vanadium)



GOREV, K.V. [Horau, K.V.]; PUKHOVSKIY, Ye.P. [Pukhouski, IA.P.]

Heat-resistant properties of nickel alloys. Vestsi AN BSSR. Ser. Fiz.-  
tekhn. nav. no.2:82-85 '63. (MIRA 17:1)

ACCESSION NR: AP3010438

S/0201/63/000/003/0094/0097

AUTHOR: *GOREV* *PAWLENKO Z D*  
Goraw, K. V., Pawlenka, Z. D.

TITLE: Properties of alloys of the nickel-chromium-iron (Ni-Cr-Fe) system alloyed with aluminum and titanium

SOURCE: AN BSSR. Izvestiya. Seriya fiziko-tekhnicheskikh nauk, no. 3, 1963, 94-97

TOPIC TAGS: nickel-chromium-iron system alloy, heat resistant alloy, nickel-chromium alloy, aluminum alloy, titanium alloy, hardness measurement, breaking strength measurement, alloy aging

ABSTRACT: The effect of aging, the puncture [literal transl.] hardness and the tensile strength were measured on four groups of alloys with iron content of 0, 10, 20 and 40 per cent. Within each group the aluminum content was varied between 0 and 8 per cent., and the titanium content between 0 and 3 per cent. Also investigated was the nature of the change in solubility of aluminum in the gamma-phase solid solution as a function of the iron content at a constant titanium

Card 1/2

ACCESSION NR: AP3010438

concentration of 2 per cent. For all investigations the chromium content was maintained constant at 16 per cent. The results are presented in a series of graphs, but there is little by way of an organized and unifying interpretation of the observed values. Orig. art. has 4 figs and 1 table.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 04Oct63

ENCL: 00

SUB CODE: ML

NO REF SOV: 002

OTHER: 000

Card 2/2

ACCESSION NR: AP4014233

S/0201/63/000/004/0107/0113

AUTHOR: ~~Goraw, K. V.~~ Gorev, K. V.; Pykhowski, Ya. P.

TITLE: Investigation of heat-resisting alloys with an iron base

SOURCE: AN BSSR. Izvestiya. Ser. fiz.-tekhn. nauk, no. 4, 1963, 107-113

TOPIC TAGS: heat-resisting austenitic alloy, iron base, quaternary alloy, protracted high temperature, incipient crystallization temperature, solid austenitic solution, heterophase area, tungsten, molybdenum, aluminum

ABSTRACT: Despite the considerable number of recent studies on heat-resisting austenitic alloys, the laws governing the change in their resistance according to composition and structure and the connection of heat resistance with state diagrams have not been sufficiently investigated, particularly for the composite metallic systems described by state diagrams with four or more components. Moreover, a number of systems have been studied without taking into account the effect of the melting point on heat resistance. The paper gives the results of a study of quaternary iron-base alloys with various

Card 1/3

ACCESSION NR: AP4014233

admixtures of such elements as Co, W, Mo and Al, taking as a base the triple alloy Fe-Cr 15-Ni 30, which is stable at protracted high temperatures due to the high nickel content. The alloys were melted in a high-frequency induction furnace on a layer of basic slag, and reduced with manganese and powdered aluminum. The authors studied the dependence of the temperatures of incipient recrystallization upon the concentration of the alloying elements and the connection between the changes in heat resistance and those temperatures. According to the degree of their effect on the heat-resisting properties and the temperature of incipient recrystallization of the solid austenitic solution, the alloying elements may be arranged thus (in terms of the same atomic percentage): Co → Al → W → Mo. The effect of the alloying elements in the heterophase areas adjacent to the solid solution depends upon the nature of the other phases, upon their propensity to coagulation. Tungsten, molybdenum and aluminum form other phases in which the diffusion processes are retarded, which considerably raises the heat resistance and shifts the temperature intervals of sufficient recrystallization development to higher temperatures.

Card 2/3

ACCESSION NR: AP4014233

Orig. art. has: 4 graphs

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 03Feb64

ENCL: 00

SUB CODE: ML

NO REF SOV: 011

OTHER: 001

Cord 3/3

GOREV, K.V.; TOPPENETS, R.L.; MENDELEYEV, L.T.

Change in the fine texture of alloy EI-437 in dispersion hardening.  
Dokl. AN BSSR 7 no.7:474-476 J1 '63. (MIRA 16:10)

1. Fiziko-tekhnicheskii institut AN BSSR.

GOREV, K. V.

ACCESSION NR: AP4025749

S/0201/64/000/001/0110/0112

AUTHOR: Gorav, K. V.; Pawlenka, Z. D.

TITLE: Effect of iron on the solubility of aluminum in a solid

SOURCE: AN BSSR. Izv. Seriya fiziko-tekhnicheskikh nauk, no. 1, 1964, 110-112

TOPIC TAGS: iron, nickel, chromium, aluminum, iron containing alloy, nickel containing alloy, chromium containing alloy, aluminum containing alloy, nickel chromium iron system

ABSTRACT: To determine the limits of saturation in a solid  $\gamma$ -solution of aluminum and titanium in alloys with different nickel and iron content, the nature of the change of the solubility of aluminum in a solid  $\gamma$ -solution of the alloy Ni-Cr-Fe in the temperature interval 970-1370°K as a function of the quantity of iron was determined by micro-and x-ray analysis and by the measurement of electrical resistance. The four specimen groupings had an iron content of 0, 10, 20, and 40%. In each group the aluminum content varied from 0 to 6%. X-ray analysis was carried out on a URS-70 unit. It was found that iron shifts the saturation line of

Card

1/2



ACCESSION NR: AP4025749

the solid  $\gamma$ -solution to the side of lower aluminum concentrations. The first addition of iron (10%) acts more powerfully in changing solubility, especially at high temperatures. The shift of the solubility line in the case of iron additions greater than 10% proceeds more or less evenly at temperatures from 970 to 1270°K. Metallographic analysis shows also that with increased iron concentration the  $\beta$ -phase (Ni-1) appears in the alloy structure at lower aluminum concentrations. In alloys without iron the  $\beta$ -phase appears in the alloy structure when the aluminum content is 6-8%, and in the case of 40% iron, when the aluminum content is 4%.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 10Apr64

ENCL: 00

SUB CODE: MM

NO REF SOV: 000

OTHER: 001

Card 2/2

17159-65 EWT(m)/EPR/T/EWP(t)/EWP(b) Pad 1s-4 IJP(c)/ASD(f)-2/ASD(m)-3  
 ACCESSION NR: AT4046852 JD/HW/JG/MLK S/0000/64/000/000/0258/0261

AUTHOR: Gorev, K. V.; Pavlenko, Z. D.

TITLE: Effect of iron, aluminum and titanium on the heat resistance of nickel-chromium based alloys

SOURCE: AN SSSR. Nauchnyy sovet po probleme sharoprochnykh splavov. Issledovaniya staley i splavov (Studies on steels and alloys). Moscow, Izd-vo Nauka, 1964, 258-261

TOPIC TAGS: heat resistant alloy, nickel chromium alloy, iron admixture, aluminum admixture, titanium admixture, alloy heat resistance, dispersion strengthening, alloy mechanical property

ABSTRACT: Dispersion strengthening, long-term hardness, stress-rupture strength, and the nature of the changes in aluminum solubility in the  $\gamma$ -solid solutions were the characteristics investigated in a study of the heat resistance of four types of alloys, with 0, 10, 20 and 40% iron, 16% chromium and varying nickel (35-79%). aluminum

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L 17159-65  
ACCESSION NR: AT4046852

ACCESSION NR: A14048852

(0-8%) and titanium (0-3%) contents. The alloys were hardened at 1200C and aged at 750C for 20 hrs. The long-term hardness of the alloys as a function of iron, aluminum and titanium contents was measured by means of a press at 900 kg and 750C for one hour, the diameter of spherical samples being 9.5 mm. A Vickers machine was used at 23 kg/mm<sup>2</sup> and 750C to measure stress-rupture strength. The results of the study, complex and largely nonuniform, are shown in the Enclosures. (Info. not avail. figures and tables)

ASSOCIATION: none

SUBMITTED: 16Jun64

ENCL: 03

SUB CODE: MM, TD

NO REF SOV: 002

OTHER: 000

Card 2/5

L 17159-65  
ACCESSION NR: AT4046862

ENCLOSURE: 01

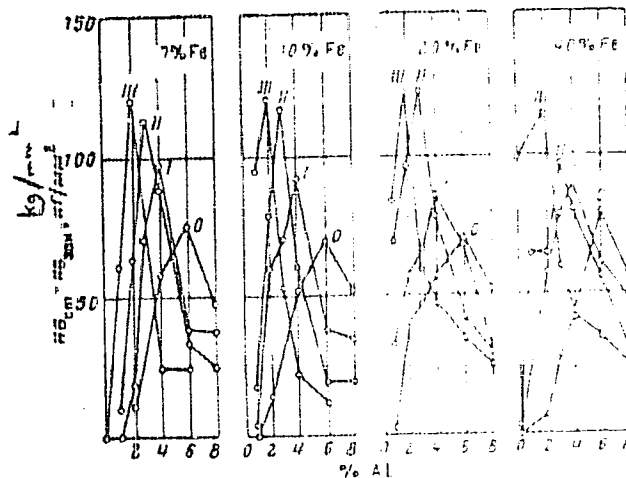


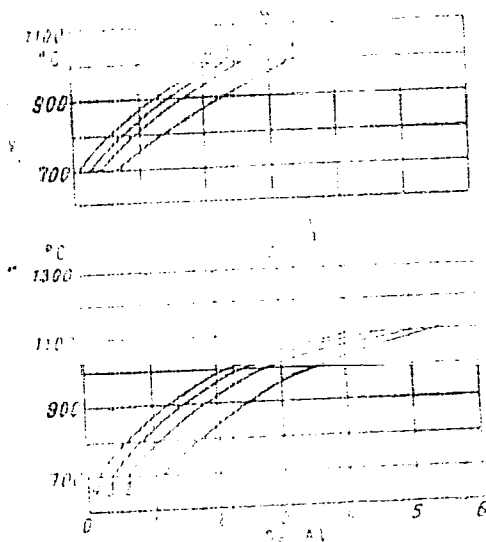
Fig. 1. Dependence of dispersion hardening of Ni-Cr - based alloys on iron, aluminum, and titanium content. O - 0% Ti; I - 1% Ti; II - 2% Ti; III - 3% Ti.

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L 17159-65  
ACCESSION NR: AT4046852

ENCLOSURE: 02

Fig. 2. Dependence of the solubility of aluminum in the  $\gamma$ -solid solution of Ni - Cr based alloys on iron content. a) results of x-ray structural analysis; b) results of microstructural analysis; 1 - 0% Fe, 2 - 10% Fe, 3 - 20% Fe; 4 - 40% Fe.



Card 4/5

I 17159-65  
ACCESSION NR: AT4046862

ENCLOSURE: 03

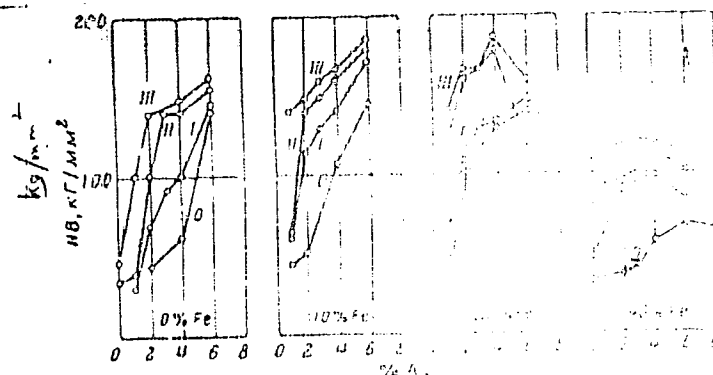


Fig. 8. Long-term hardness of Ni - Cr based alloys as a function of iron, aluminum and titanium content (designations as in Fig. 1).

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GOREV, K.V. [Horev, K.V.], akademik; KONOVALOV, Ye.G. [Konavalov, IA.R.],  
doktor tekhn. nauk

Vasil' Piatrovich Seviardzenke, 1904 -; on his 60th birthday.

Vestsi AN BSSR Ser. fiz.-tekhn. nav. no.1:135-136 '64

(MIRA 17:7)

1. AN BSSR (for Gorev).

GOREV, K.V., akademik

Vasiliï Petrovich ~~S. [redacted]~~; on his 60th birthday. Inzh.-fiz. zhur.  
7 no.1:127-128 Ja '64. (MIRA 17:2)

1. Akademiya nauk BSSR.



GOREV, K.V.; DOVNAR, S.A.; BUTKEVICH, V.A.

Changes in the engineering properties of 3Kh<sup>n</sup>V8 and 5KhGSVT  
steels caused by secondary high-frequency hardening. Dokl.  
AN BSSR 9 no. 11:742-744 N '65 (MIRA 19:1)

1. Fiziko-tekhnicheskiy institut AN BSSR.

ACC NR: AR6027506

SOURCE CODE: UR/0137/65/000/004/1020/1020

AUTHOR: Gorev, K. V.; Tofpenets, R. L.; Mendeleyev, L. T.; Malashenko, L. M.

TITLE: Strengthening of dispersion hardening alloys

SOURCE: Ref. zh. Metallurgiya, Abs. 41135

REF SOURCE: Sb. Metallovedeniye i term. obrabotka met. Minsk. Nauka i tekhnika, 1965, 25-33

TOPIC TAGS: dispersion hardening, x ray analysis, internal stress, fine structure / D16 alloy, EI437 alloy

TRANSLATION: An x-ray study of Al-Cu (4.5% Cu), D16 and EI437 alloys was made. Changes in fine structure were judged according to the width changes of interference lines. Curves of interference line width changes corresponded to the hardness change curves of the alloys. Line width maxima, characterizing the change of alloy block structure, and hardness maxima occurred in the EI437 alloy, aged at 700°C for 200 hr at 800°C for 25-50 hr. The mosaic block size in the EI437 alloy decreased from 430 to 244 Å by increasing the aging time at 700°C from 10 to 200 hr. The factors influencing the strengthening of dispersion hardening alloys appear to be not only internal stresses and inhomogeneity of the solid solution but also the breaking up of the block structure of the matrix and particles of the strengthening phase. V. Kuz'mina.

SUB CODE: 11,13

UDC: 669.715+669.245].017.3:621.785.78:539.7

Card 1/1

ACC NR: AR6027510

SOURCE CODE: UR/0137/66/000/004/I060/I061

AUTHOR: Gorev, K. V.; Tofpenets, R. L.; Mendeleyev, L. T.

TITLE: Relation between creep rupture, hardness and the characteristics of the recrystallization process in dispersion-hardening alloys

SOURCE: Ref. zh. Metallurgiya, Abs. 4I410

REF SOURCE: Sb. Metallovedeniye i term. obrabotka met. Minsk, Nauka i tekhnika, 1965, 01-04

TOPIC TAGS: creep mechanism, dispersion hardening, rupture strength / EI437 alloy, D16 alloy

TRANSLATION: A study was made of the EI437 and D16 dispersion-hardening alloys. Alloy D16 was aged at 200 and 250°C for 10-500 hr; alloy EI437--at 700 and 800°C for 0-200 hr. It was shown that alloy EI437 had the best creep rupture strength (time to fracture at 750°C and  $\sigma = 23.4 \text{ kg/mm}^2$ ) after being aged at 700°C for 50 hr, at which the hardness at room temperature and the recrystallization range were high. This same alloy, when aged at 800°C had the best creep rupture strength after aging for 10 hr. Similar results were obtained for alloy D16, where the maximum creep rupture strength (test temperature 300°C,  $\sigma = 5 \text{ kg/mm}^2$ ) was obtained after aging at 200°C for 10 hr. A drop in creep rupture strength in the alloys, aged at longer holding times, was asso-

UDC: 539.434:669.15.018.8

Card 1/2

ACC NR: AR6027510

ciated with a lowered room temperature strength, as well as with a more intensive re-crystallization process. V. Kudryashov.

SUB CODE: 11,20

Card 2/2